

Remarks

Claims 1-36 are pending in this patent application and claims 4-20 and 26-30 are withdrawn from examination by the Examiner on the basis of a previous election of species requirement. Reconsideration of the rejected claims in view of the above amendments and the following remarks is respectfully requested.

The Invention

The invention as recited in claim 1 basically relates to a configuration for combining flat structural components of relatively low thickness which utilize a tongue-and-groove connection. The groove and tongue have certain recited configurations which include diverging wedge-shaped areas and which include a locking mechanism integrated into the tongue and the groove. The invention also includes either a pre-applied adhesive layer or a pre-applied layer of a substance which activates an adhesive which is applied off-site and which is present on (1) the groove at least in the area of its divergent sides or (2) on the tongue at least in the area of its divergent wedge-shaped area, or (3) on both of these recited areas.

The invention as recited in claim 31 similarly basically relates to a configuration for combining flat structural panels comprising first and second panels having a groove and a tongue each having a specific recited configuration and a locking mechanism. The invention also includes a pre-applied adhesive layer or a pre-applied layer of a substance which activates an adhesive that is applied off-site and that is present on (1) the groove at least in the area of the divergent sides or (2) on the tongue at least in the area of the divergent wedge-shaped area, or (3) on both areas.

The invention as recited in claim 34 similarly basically relates to a configuration for combining flat structural panels comprising first and second panels having a groove and a tongue each having a specific recited configuration and a locking elements. The invention also includes a pre-applied first layer arranged on at least one surface of the groove at least in an area of the divergent sides and a pre-applied second layer arranged on at least one surface of the tongue at least in an area of the divergent wedge shape, wherein each of the pre-applied first and second layers comprises an adhesive layer or a pre-applied layer of a substance which activates an adhesive.

As explained in the "Summary of the Invention" paragraph of the instant specification, the invention provides for a locking tongue and groove connection which, upon connection, automatically provides a secured connection without the need for any additionally fixing devices. Moreover, the paragraph bridging pages 4 and 5 of the specification specifically explains the benefits of this connection as, among other things, reducing the amount of "maneuvers and manual stages involved in laying out the panels on site". Other noted benefits of pre-applying the substance include: (i) ensuring that a sufficient but not excessive amount of adhesive is used in the connection, (ii) eliminating the problem of glue setting during installation, (iii) providing a seamless joint, and (iv) eliminating the possibility of a welling out of the substance which typically occurs when a glue is applied on site and which can form spots on the surface that must be removed immediately.

To achieve the numerous benefits noted above, the invention utilizes a unique combination of three features in the connection of flat structural panels: first, the connection uses a tongue and groove connection with divergent sides; second, both the

tongue and the groove have a locking mechanism or element; finally, either the tongue, or the groove, or both of these devices, have a pre-applied adhesive or an adhesive substance. By applying the substance at least to corresponding divergent surfaces of the tongue and groove and connecting the tongue and groove, the tongue becomes bonded to the groove by virtue of the divergent surfaces being pushed and remaining in tension. This ensures an especially reliable bonding of the connection. Furthermore, because of the substance placement and the use of the locking elements, the arrangement is such that locking elements help ensure that the substance on the divergent sides cannot come up and out of the connection onto the surface of the panels. Thus, the locking elements act as a locking device and as a device which prevents the spilling out of the adhesive substance. The pre-application of the adhesive or substance at least on the divergent sides also ensures it does not find its way into the locking elements – thereby ensuring a totally flat surface in the area of the connection of the panels.

This combination of features provides the numerous benefits noted above and is entirely lacking in the applied art of record. There is simply no appreciation of the above-noted benefits in the applied documents or any recognition in the applied documents of using such a unique combination of features to achieve an automatically secure connection between flat structural panels.

The meaning of pre-applied adhesive or pre-applied adhesive activator

Pre-applied adhesives or pre-applied adhesive activator substances are terms of art whose meaning is well known to those having ordinary skill in the art of adhesives.

Such a feature is clearly structural and cannot properly be argued to be a non-limiting method limitation. Applicant refers the Examiner, by way of Examiner, to U.S. Patent No. 4,417,028 to AZEVDO (a copy of which is attached hereto) which contains an accurate description of such substances. Such substances are typically stable compositions which are prepared and pre-applied to "surfaces prior to the time of assembly, which will remain on the parts during normal storage and shipment, and which will cure upon mating with another part thereby imparting an effective and improved seal or bond." (see col. 1, lines 56-68 of AZEVDO). Such substance also typically ensure that the pre-applied parts "can then be shipped or stored for substantial periods of time prior to cure" and are "dry to the touch. Finally, such substances may also have the attribute that "when crushed or ground by a mating surface, cures to a strong bond" (see col. 2, lines 1-22 of AZEVDO). Indeed, these properties, as well as other properties, are specifically acknowledged and noted on pages 5-14 of the instant specification in discussing examples of the types of substances which can be utilized in the invention.

35 U.S.C. 103 Rejections

Claims 1-3, 21-25 and 31-36

Claims 1-3, 21-25 and 31-35 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Austrian reference 405,560 ("AT '560") in view of German reference 297 03 962 ("DE '962") and in further in view of either U.S. Patent No. 5,323,584 to SCARLETT, U.S. Patent No. 4,195,462 to KELLER et al., or U.S. Patent No. 5,899,251 to TURNER. Applicant respectfully traverses this rejection.

In order for a prior art reference or combination of references to render a claim obvious, three basic criteria must be met. First, there must be some suggestion or motivation to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the reference or references, when combined, must disclose or suggest all of the claim limitations. The motivation to modify the prior art and the reasonable expectation of success must both be found in the prior art and not based upon a patent applicant's disclosure. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claim 1 recites a configuration for combining flat structural components which utilizes the combination of a tongue and groove connection wherein both the tongue and groove have divergent sides and integrated locking mechanisms and which also includes a pre-applied adhesive layer or a pre-applied layer of a substance which activates adhesive is applied off-site and is present on the groove at least in the area of its divergent sides or on the tongue at least in the area of its divergent wedge-shaped area, or on both areas. Claim 31 similarly recites the combination of a tongue and groove connection wherein both the tongue and groove have divergent sides and locking elements and also includes a pre-applied adhesive layer or pre-applied substance which activates adhesive applied off-site and being present on the groove at least in the area of the divergent sides or on the tongue at least in the area of the divergent wedge-shaped area, or on both areas. Finally, claim 34 similarly recites the combination of a tongue and groove connection wherein both the tongue and groove have divergent sides and locking elements and additionally includes a pre-applied first layer arranged on at least one surface of the groove at least in an area of the divergent

sides and a pre-applied second layer arranged on at least one surface of the tongue at least in an area of the divergent wedge shape, wherein each of the pre-applied first and second layers comprises an adhesive layer or a pre-applied layer of a substance which activates an adhesive.

The Examiner asserts that AT '560 discloses the flat structural components having the structure recited in the claims, but lacks the recited adhesive between the tongue and groove joints. The Examiner explains, however, that DE '962 teaches the use of a contact adhesive in a tongue and groove joint to establish a secure engagement between the panels. The Examiner further asserts that each of SCARLETT, KELLER and TURNER disclose the "application of an adhesive upon or within a locking joint between structural members" and, as a result of these teachings, that it would have been obvious "[t]o have provided the floor tile assembly of [AT '560] with adhesive between and within the tongue and groove joints." Applicant respectfully disagrees with the Examiner's position and assertions.

As the Examiner knows, documents AT '560 and DE '962 are discussed on page 1 of the instant specification. It is acknowledged there that that DE '962 teaches a tongue and groove connection between panels as well as the factory application of glue to adjoining areas, and that AT '560 teaches a tongue and groove with locking mechanisms. However, the Examiner has apparently ignored the noted deficiencies of these documents. For example, AT '560 does not teaches the use of any adhesive in a locking tongue and groove joint. Moreover, Applicant has specifically explained that DE '962 discloses a contact glue which requires that the mating surfaces "be pressed together with a considerable degree of pressure, making it impossible to additionally

adjust the glued joint in the longitudinal direction for the purpose of closing a transverse joint.” Thus, even if these documents were properly combinable (which Applicant disputes) they would nevertheless not disclose or suggest the unique combination of three features in the connection of flat structural panels: that is, (1) a tongue and groove connection with divergent sides; that both the tongue and the groove have a locking mechanisms or elements; and that either the tongue, or the groove, or both of these devices, have a pre-applied adhesive or an adhesive substance as defined above. Nor would any proper combination of these document recognize the numerous benefits noted above and even achieve an automatically secure connection between flat structural panels.

Applicant also fails to see the relevancy of each of SCARLETT, KELLER or TURNER, as these documents are completely silent with regard to a pre-applied adhesive layer or activator substance.

SCARLETT, for example, discloses the use of an adhesive joint between different portions of a structural beam. While this document discloses the use of a locking joint which is secured with adhesive, the Examiner has failed to appreciate the fact that SCARLETT does not disclose the use of a pre-applied adhesive. SCARLETT, instead teaches using an adhesive which is applied at the time of assembly and which has the problem of a welling of adhesive during the closing of the joint (see col. 6, lines 24-28).

KELLER similarly discloses the use of an adhesive joint between different portions of a structural beam. While this document also discloses the use of a locking joint which is secured with adhesive, the Examiner has failed to appreciate the fact that

KELLER does not disclose the use of a pre-applied adhesive. KELLER, instead merely teaches coating the tongue and groove prior to their being joined with “a suitable adhesive” (see col. 2, lines 53-55).

Finally, TURNER merely discloses the use of an adhesive joint between wood members. While this document also discloses the use of a locking joint which is secured with adhesive, the Examiner has failed to appreciate the fact that TURNER does not disclose the use of a pre-applied adhesive. TURNER, instead merely teaches applying “a suitable adhesive ... to both the abutment surfaces and the pieces of machined timber slidably engaged. ” (see col. 4, lines 64-67).

Thus, it is apparent that no proper combination of the applied references discloses or suggests that the pre-applied adhesive layer or the pre-applied layer of a substance that activates an adhesive. Accordingly, the cited combination of references does not render obvious independent claims 1, 31 and 34, or the claims that depend from them. Therefore, Applicant respectfully requests that the rejection be withdrawn.

Claims 1-3, 21-25 and 31-36

Claims 1-3, 21-25 and 31-36 were also rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over AT '560 in view of DE '962 and any one of SCARLETT, KELLER, or TURNER, and further in view of U.S. Patent No. 6,004,417 to ROESCH et al. Applicant respectfully traverses this rejection.

The Examiner's position in setting forth this rejection is stated to be the same as that in setting forth the previous rejection under 35 U.S.C. § 103(a). The Examiner further asserts, however, that ROESCH teaches the advantages of “two component

adhesives”, the pre-applying and/or the off-site application of an adhesive to one or both members which are to be connected.

In addition to the arguments noted above, Applicant submits that ROESCH also does not cure the deficiencies of the above-noted documents for at least the following reasons:

First, ROESCH is clearly non-analogous art. Whereas the invention relates to the connecting of flat structural components or panels using a tongue and groove locking connection having a pre-applied adhesive or adhesive activator, ROESCH merely relates to a connection between plastic pipe parts which can be pre-applied with an adhesive (see Fig. 3).

Second, Applicant fails to see the relevancy of this document. It is clear that the disclosed connection is not between flat structural components or panels. Nor is there is no tongue and groove connection, much less, one using divergent sides. Finally, the disclosed connection does not utilized any locking mechanisms or elements in combination with the pre-applied adhesive.

Third, like the other applied documents discussed above, ROESCH does not recognize the numerous benefits noted above and even achieve an automatically secure connection between flat structural panels.

Accordingly, Applicant respectfully submits that the cited combination of references does not render claims 1-3, 21-25 and 31-36 obvious, and respectfully request that the rejection be withdrawn.

Claims 32, 33 and 35

Claims 32, 33 and 35 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over AT '560 in view of DE '962 and any one of SCARLETT, KELLER, or TURNER, and further in view of any one of U.S. Patent No. 6,398,902 to ROBINS et al., or U.S. Patent No. 5,678,715 to SJOSTEDT et al., or U.S. Patent No. 5,165,816 to PARASIN, or U.S. Patent No. 5,157,892 to RYTHER. Applicant respectfully traverses this rejection.

Claims 32, 33 and 35 were also rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over AT '560 in view of DE '962 with any one of SCARLETT, KELLER, or TURNER, and ROESCH and further in view of any one of ROBINS, or SJOSTEDT, or PARASIN, or RYTHER. Applicant respectfully traverses this rejection.

In addition to the arguments noted above, Applicants submit that each of ROBINS, SJOSTEDT, PARASIN and RYTHER does not cure the deficiencies of the above-noted documents for at least the following reasons:

First, none of ROBINS, SJOSTEDT, PARASIN and RYTHER discloses or suggests a connecting between flat structural components or panels using a tongue and groove locking connection having a pre-applied adhesive or adhesive activator and/or locking mechanisms in the tongue and groove. ROBINS, for example, discloses a bonded connection between tubular sections. PARASIN teaches a tongue and groove connection, but not one having locking mechanisms or elements and/or using a pre-applied adhesive or adhesive activator. SJOSTEDT arguably teaches a tongue and groove connection using an adhesive, but not one having locking mechanisms or elements in combination with a pre-applied adhesive or adhesive activator. Finally,

RYTHER arguably teaches a tongue and groove connection using an adhesive, but not one having locking mechanisms or elements and/or a pre-applied adhesive or adhesive activator.

Second, like the other applied documents, none of these documents appears to recognize the numerous benefits noted above and even achieve an automatically secure connection between flat structural panels.

Accordingly, Applicant respectfully submits that the cited combination of references does not render independent claims 1, 31 and 34 obvious, much less dependent claims 32, 33 and 35, and respectfully request that these rejections be withdrawn.

Rejoinder of non-elected claims

Applicant submits that if generic claim 1 is found to be allowed or allowable, the species requirement with respect to claims 4-20 and 26-30 would be improper and should be withdrawn, i.e., claims 4-20 and 26-30 depend from claim 1 and should therefore be rejoined. Applicant refers the Examiner to MPEP 821.04 which stands for the proposition that withdrawn claims which depend from or otherwise include all the limitations of the allowable claims will be rejoined if presented prior to allowance and issuance of a final rejection. As the instant Amendment is being made prior to a final rejection and allowance, Applicant respectfully requests entry and allowance of previously withdrawn claims 4-20 and 26-30, if and when claim 1 is found allowable.

CONCLUSION

In view of the foregoing amendments and remarks, Applicant submits that all the claims are allowable over the cited references and that the application itself is in condition for allowance. The examiner is respectfully requested to pass this application to issue. The examiner is invited to contact the undersigned at the telephone number listed below, if needed. Applicant hereby makes a written conditional petition for an extension of time, if required. Please charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 19-0089.

Respectfully submitted,
F. KNAUSEDER

A handwritten signature in black ink, appearing to read 'Andrew M. Calderon', with a large, stylized loop at the end.

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November 18, 2005
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